2. Arya

Program Name: Arya.java **Input File: arya.dat**

Arya is very interested in the binary search process. He wants to write a program that will allow him to see the various "guesses" the computer makes when guessing a number using the binary search.

The program will first allow for the input of N representing the largest positive integer in the possible set of numbers 1…N. Then an integer R will be input representing the target number. The program will use a binary search strategy to "find" that value.

Each line of output will display not only each of the program's guesses, but the low value and high values that were used to determine the guesses. All guesses are displayed until the target is reached. For example, if 11-21-31 is displayed, the 21 indicates the guess while the 11 and the 41 indicate the current lower and upper bounds.

If there is an odd number of items in the remaining range of numbers, the guess will be the middle number. For example, if there were 11 numbers remaining, the guess would be the 6th number in that list.

If there are an even number of items remaining, the guess will be the lesser of the two middle numbers. For example, if 20 numbers remain, the guess would be the 10th number in the list.

Input:
The first line of input will contain a single integer T, the number lines of data to follow (1 <= T <= 10).
Each line of data will consist of two positive integers N and R. N (1<=N<=100000) will represent the largest possible integer in the range. R represents the target and will be in the range (1<=R<=N).

Output:
For each test case, sets of 3 integers will be printed on separate lines until the target is found. The first is the low value of the current range. The second is the computer's guess. The third is the high number in the current range. A dash (-) will separate the numbers with no extra spaces. After the target is found, "GOT IT!!!" will be printed.

Sample input:

```
5
10 7
15 12
100 32
1000 500
31 31
```

Sample output:

```
1-5-10
6-8-10
6-6-7
7-7-7
GOT IT!!!
1-8-15
9-12-15
GOT IT!!!
1-50-100
1-25-49
26-37-49
26-31-36
32-34-36
32-32-33
GOT IT!!!
1-500-1000
GOT IT!!!
1-16-31
17-24-31
25-28-31
29-30-31
31-31-31
GOT IT!!!
```